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PRINCIPLES OF MACROECONOMICS–II

B.E.C.C.-134

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Sample Preview of the Solved Sample Question Papers

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QUESTION PAPER

June – 2023

(Solved)

PRINCIPLES OF MACROECONOMICS-II B.E.C.C.-134

Time: 3 Hours] *[Maximum Marks: 100*

Note: *Answer the questions as per instructions.*

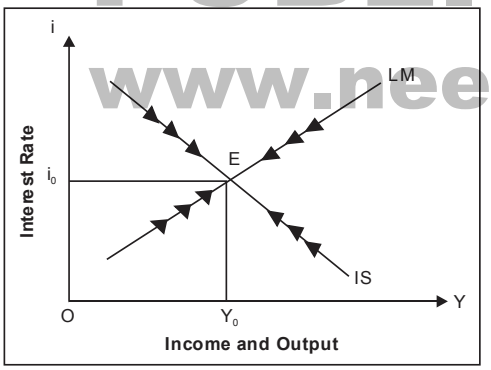
SECTION-A

Note : Answer the following questions from this Section:

Q. 1. Describe when simultaneous equilibrium results both in the real sector and the monetary sector of an economy. Explain how such equilibrium is stable.

Ans. Ref.: See Chapter-3, Page No. 28, Q. No. 1.

Also Add: In case we are above the IS curve and on the LM curve, then the movement towards the equilibrium point E would mean lowering interest rates and the lowering of output too. Assets market does not take time to clear and hence the equilibrium is attained immediately. This kind of adjustment process will lead to an equilibrium position, which is stable till the concerned economic variables do not change.



Q. 2. Explain how the AD curve is derived from the IS-LM model.

Ans. Ref.: See Chapter-4, Page No. 35, 'Aggregate Demand Curve'.

Q. 3. What is meant by Inflation? What are the major causes of inflation in an economy?

Ans. Ref.: See Chapter-7, Page No. 71, 'Introduction', Page No. 72, 'Inflation Defined', Chapter-8- Page No. 82, 'Causes of Infltion'..

Q. 4. ***(a)*** **What are the various types of exchange rate regimes?**

Ans. Ref.: See Chapter-11, Page No. 136, 'Exchange Rate Regime'.

(b) **Distinguish between nominal and real exchange rates.**

Ans. Ref.: See Chapter-11, Page No. 137, 'Nominal *Vs* Real Exchange Rates'.

SECTION-B

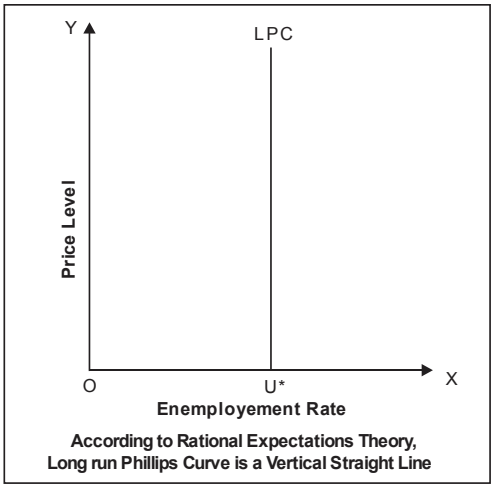
Note : Answer any four questions from this Section:

Q. 5. Discuss the impact of inflation on various sections of society.

Ans. Ref.: See Chapter-8, Page No. 84, 'Effect of Inflation'.

Q. 6. Explain the shape of the Phillip's curve under rational expectations.

Ans. According to the rational expectations theory, aggregate supply curve is a vertical straight line at the potential GNP level (that is, at the natural rate of unemployment, given the resources and technology. Long run Phillips curve, according to rational expectations theory, corresponds to the long run aggregate supply curve and is a vertical straight line at the natural rate of unemployment as shown below:



Rational Expectations Theory rests on two basic elements. First, according to it, workers and producers

being quite rational have a correct understanding of the economy and therefore correctly anticipate the effects of the government's economic policies using all the available relevant information. On the basis of these anticipations of the effects of economic events and government's policies they take correct decisions to promote their own interests. Second is that, like classical economists, it assumes that all product and factor markets are highly competitive. As a result, wages and product prices are highly flexible and therefore can quickly change upward and downward. The rational expectations theory considers that new information is quickly assimilated (taken into account) in the demand and supply curves of markets so that new equilibrium prices immediately adjust to the new economic events and policies.

Q. 7. What is meant by Balance of Payments? What are its components?

Ans. Ref.: See Chapter-10, Page No. 113, 'Balance of Payment Accounting Principles', Page No. 129, Q. No. 1.

Q. 8. Describe the factors that influence the AS curve in the medium run.

Ans. Ref.: See Chapter-5, Page No. 46, 'Aggregate Supply Curve in the Medium Run'.

Q. 9. Discuss the factors that affect the slope of the LM curve. Interpret the LM curve when it is horizontal in shape.

Ans. Ref.: See Chapter-2, Page No. 16, 'Slope of the LM Curve', Page No. 3, Page No. 28, 'Case-I'.

Q. 10. Explain the concept of natural rate of unemployment.

Ans. Ref.: See Chapter-9, Page No. 99, 'Natural Rate of Unemployment'.

Q.11. Why does the aggregate demand curve slope downward? Explain.

Ans. Ref.: See Chapter-4, Page No. 38, Q. No. 2.

SECTION-C

Q. 12. Write short notes on any two of the following:

***(a)* Stagflation.**

Ans. Ref.: See Chapter-7, Page No. 73, 'Stagflation', Page No. 74, 'Stagflation'.

***(b)* Impact of supply shock on the economy.**

Ans. Ref.: See Chapter-6, Page No. 59, 'Supply Stock'.

***(c)* Output Gap.**

Ans. Ref.: See Chapter-6, Page No. 64, Q. No. 3.

***(d)* Sacrifice Ratio.**

Ans. Ref.: See Chapter-8, Page No. 86, 'Sacrifice Ratio', Page No. 87, '*(c)* Sacrifice Ratio'.

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Sample Preview of The Chapter

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PRINCIPLES OF MACROECONOMICS-II

BLOCK-1 : IS-LM ANALYSIS

Equilibrium in the Real Sector

1

INTRODUCTION

Keynes believed that there is under employment of resources in an economy and an increase in money supply results in a decline in interest. But the classical economists believed in duality of the real and monetary sectors of the economy and an increase in money supply results in proportionate increase in prices, as output cannot be increased.

Keynes further says that a decrease in interest rate results in an increase in investment, which leads to an increase in output through investment multiplier. Thus monetary variables have an impact on real economic variables.

IS-LM Analysis: The goods and money markets are interdependent.

- ***(a)*** Interest rate have an impact on investment which influences output.
- ***(b)*** Similarly, growth in output has an impact on demand for investment which in turn affects interest rate.

This creates a need for simultaneous study of money and output market. An economy will be stable if simultaneous equilibrium exists in goods market and in money market.

J R Hicks and Alvin Hansen tried to combine the equilibrium in both goods and money markets and this was named as IS-LM model.

CHAPTER AT A GLANCE

GOODS MARKETS

Keynesian model explains Goods Market. It is where AD-AS interact with each other and equilibrium level of income and output are determined. We saw equilibrium was established where AD = AS or S = I but it ignored the rate of interest concept.

Goods market equilibrium can be described through the IS curve. IS stands for Investment-Saving. It shows all the positions where investment and saving in the economy are equal. Initially, investment is assumed to be autonomous or fixed for simplicity but in reality however investment is not fully exogenous.

An economy is in equilibrium where AD = AS and it leads us to $a + Io/1\text{-}b$ where two determinants of equilibrium income are 'a' and marginal propensity to consume (c). Higher MPC means higher output level and vice-versa.

Interest Rate and Investment

Now at this level, we shall understand how investment is determined and it will not be taken as autonomous anymore. Hence, we introduce interest rate as a determinant of investment. Investment is generally inversely related to rate of interest. Generally, the firms borrow to invest. When interest rate is high, borrowing cost will increase, which will lower profits of the firms. On the other hand, if rate of interest is low, borrowing cost will be relatively lower and firms will borrow more. Thus, if the rate of interest is high, firms borrow less, which results in lower investment.The investment spending function can be written as

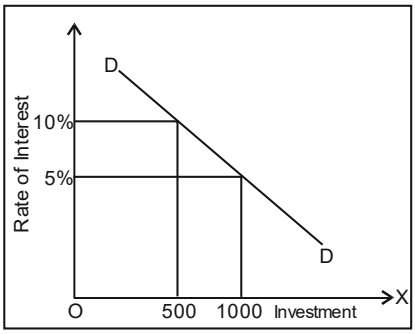
$$I = \bar{I} - bi \text{ where } b > 0 \quad \ldots(1)$$

i = rate of interest

b = responsiveness of investment to interest rate

$\bar{I}$ = autonomous investment spending

In equation (1) we assume that investment consists of two components: (*i*) $\bar{I}$ is an autonomous component which does not depend upon the rate interest; and (*ii*) is an endogenous component which is influenced by the rate of interest. Some investments have to be done irrespective of rate of interest or return on investment, such as repairs, maintenance, etc. But certain types of investment are carried out for expansion of production capacity, and with a profit motive.



Investment may be more responsive to rate of interest or less responsive.

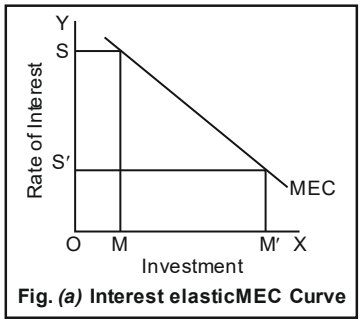


Fig. *(a)* Interest elasticMEC Curve

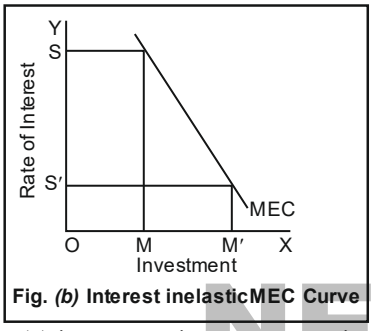
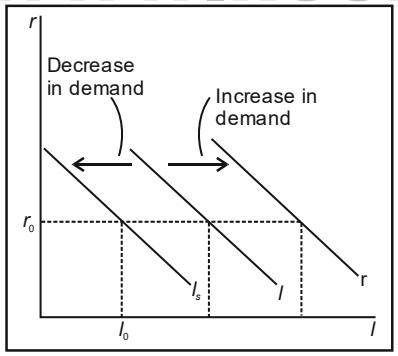


Fig. *(b)* Interest inelasticMEC Curve

In fig. (*a*) investment is more responsive to rate of interest while in fig. (*b*) is less responsive to change in rate of interest.

Shift in Investment Curve

When autonomous investment will increase investment curve will shift rightward and it will happen when AD increases. On the other hand, if autonomous investment decreases, it will shift leftward as shown in the figure given below. It will happen because of fall in AD.



Aggregate Demand and the Interest Rate

Investment is also a function of rate of interest now and hence

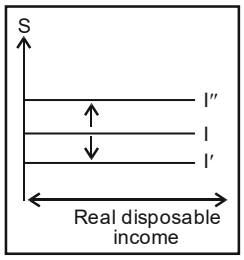
$$AD = C + I + G + (X - M)$$

$$AD = C + cTR + c(1 - t)\,Y + I - bi + \bar{G}$$

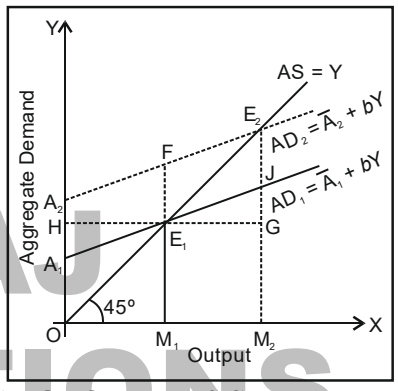
$$AD = \bar{A} + \bar{c}\,Y - bi \qquad \ldots (2)$$

where, $\bar{C} = c(1 - t)$ and $A = cTR + I + \bar{G}$

When there will be decrease in rate of interest, investment will increase and vice versa. It will lead to shift in autonomous investment as shown below in figure.



When there is change in investment then AD also shifts. It leads to establishment of equilibrium at a higher level and intercept of AD shifts from A_1 to A_2 as shown in figure.



DERIVATION OF THE IS CURVE

In the Keynesian model of goods market equilibrium we also now introduce the rate of interest as an important determinant of investment. With this introduction of interest as a determinant of investment, the latter now becomes an endogenous variable in the model. When the rate of interest falls, the level of investment increases and vice versa.

Thus, changes in the rate of interest affect aggregate demand or aggregate expenditure by causing changes in the investment demand. When the rate of interest falls, it lowers the cost of investment projects and thereby raises the profitability of investment. The businessmen will therefore undertake greater investment at a lower rate of interest.

The increase in investment demand will bring about increase in aggregate demand which in turn will raise the equilibrium level of income. In the derivation of the IS curve we seek to find out the equilibrium level of national income as determined by the equilibrium in goods market by a level of investment determined by a given rate of interest.

Thus IS curve relates different equilibrium levels of national income with various rates of interest. With a fall in the rate of interest, the planned investment will increase which will cause an upward shift in aggregate demand function (C + I) resulting in goods market equilibrium at a higher level of national income.

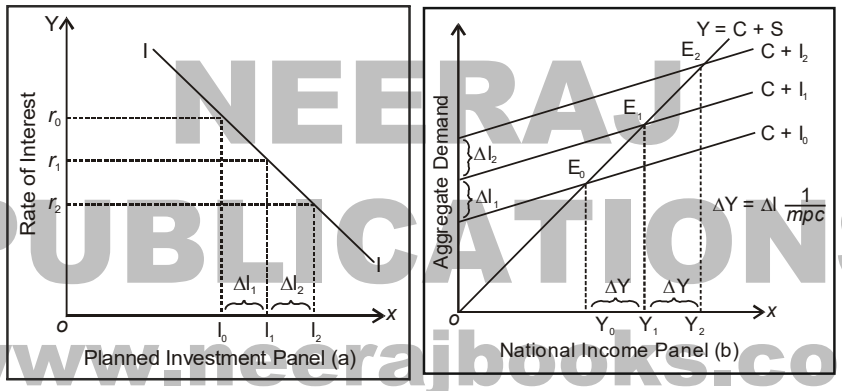
The lower the rate of interest, the higher will be the equilibrium level of national income. Thus, the IS curve is the locus of those combinations of rate of interest and the level of national income at which goods market is in equilibrium. How the IS curve is derived as illustrated in adjoining figures. In panel (*a*) of adjoining figure the relationship between rate of interest and planned investment is depicted by the investment demand curve II.

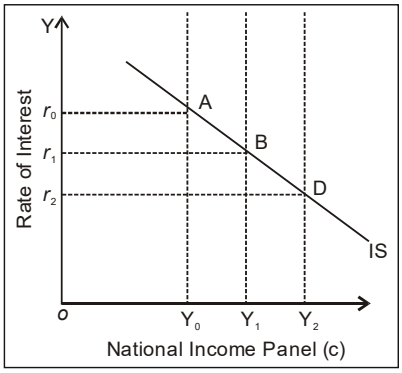
It will be seen from panel (*a*) that at rate of interest Or_0, the planned investment is equal to OI_0. With OI_0 as the amount of planned investment, the aggregate demand curve is $C + I_0$ which, as will be seen in panel (*b*) of adjoining figure equals aggregate output at OY_0 level of national income. Therefore, in the panel (*c*) at the bottom of the adjoining figure against rate of interest Or_0, level of income equal to OY_0has been plotted. Now, if the rate of interest falls to Or_1, the planned investment by businessmen increases from OI_0 to OI_1 [see panel (*a*)].

With this increase in planned investment, the aggregate demand curve shifts upward to the new position $C + I_1$ in panel (*b*), and the goods market is in equilibrium at OY_1 level of national income. Thus, in panel (*c*) at the bottom of adjoining figure the level of national income OY_1 is plotted against the rate of interest, Or_1. With further lowering of the rate of interest to Or_2, the planned investment increases to OI_2 [see panel (*a*)].

With this further rise in planned investment, the aggregate demand curve in panel (*b*) shifts upward to the new position $C + I_2$ corresponding to which goods market is in equilibrium at OY_2 level of income. Therefore, in panel (*c*) the equilibrium income OY_2 is shown against the interest rate Or_2.

By joining points A, B, D representing various interest-income combinations at which goods market is in equilibrium we obtain the IS curve. It will be observed from given figures that the IS curve is downward sloping (i.e., has a negative slope) which implies that when rate of interest declines, the equilibrium level of national income increases.





Slope of the IS Curve

Consumption demand is function of disposable income. Disposable income is level of income minus taxes ($Y_d = Y - T$) where Y_d stands for disposable income and T for taxes. However, in a two-sector model where we do not incorporate taxation by the government, $Y_d = Y$.

Investment depends on rate of interest. With a given level of income, a higher rate of interest reduces investment demand and a lower rate of interest leads to more investment, that is, investment is negatively related to rate of interest. Thus,

$$I = \bar{I} - di$$

Therefore, we have the following equation for aggregate demand (AD):

$$AD = C + I + G + NX \quad ...(1)$$

where, $C = a + bY$ (Consumption function)

$$I = \bar{I} - di \text{ (Investment function)}$$

where $\bar{I}$ is autonomous investment, that is, independent of income and rate of interest. G is government expenditure on goods and services and NX is net exports, that is, exports-imports. Product market is in equilibrium when

$$Y = AD = C(Y) + I(i) + G + NX \quad ... (2)$$

or $$Y = (a + bY) + (\bar{I} - di) + G + NX$$

$$Y - bY = a + \bar{I} - di + G + NX$$

$$Y(1 - b) = a + \bar{I} - di + G + NX$$

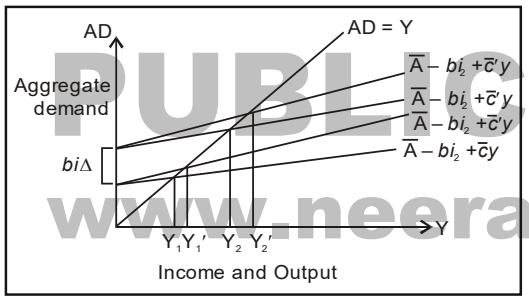
$$Y = \frac{1}{1-b}\left(a + \bar{I} + G + NX\right) - \frac{di}{1-b} \quad \ldots (3)$$

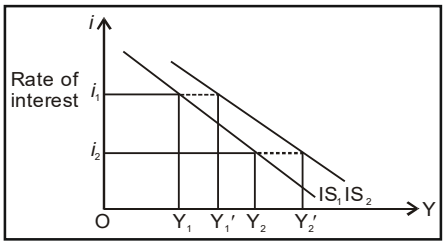
The above equation (3) describes IS curve. Terms in the brackets are all autonomous expenditure and are independent of both income and rate of interest. If we denote all these autonomous items by $\bar{A}$, then equation (3) for IS can be written as

$$Y = \frac{1}{1-b}\left(\bar{A}\right) - \frac{1}{1-b}\left(di\right)$$

or $$Y = \frac{1}{1-b}\left(\bar{A} - di\right) \quad \ldots(4)$$

$\frac{1}{1-b}$ is the income multiplier and b is marginal propensity to consume. Given the value of autonomous expenditure, we can obtain value of Y at different rates of interest to draw an IS curve. It is worth noting that the value of autonomous (A) determines the intercept of the IS curve, d in the term di in equation (3) shows the sensitivity of investment to the changes in rate of interest and determines the slope of IS curve. Since fall in interest rate increases investment spending, it will raise aggregate demand and thus the equilibrium level of income. Besides, the slope of the IS curve depends on the size of income multiplier.





Slope of the IS curve depends on:

(1) The elasticity of the investment demand curve, and (2) The size of the multiplier.

1. The elasticity of investment demand signifies the degree of responsiveness of investment spending to the changes in the rate of interest. Suppose the investment demand is highly elastic or responsive to the changes in the rate of interest, then a given fall in the rate of interest will cause a large increase in investment demand which in turn will produce a large upward shift in the aggregate demand curve.

A large upward shift in the aggregate demand curve will bring about a large expansion in the level of national income. Thus when investment demand is more elastic to the changes in the rate of interest, the investment demand curve will be relatively flat (or less steep). Similarly, when investment demand is not very sensitive or elastic to the changes in the rate of interest, the IS curve will be relatively more steep.

2. The steepness of the IS curve also depends on the magnitude of the multiplier. The value of multiplier depends on the marginal propensity to consume (*mpc*). It may be noted that the higher the marginal propensity to consume, the aggregate demand curve (C + I) will be more steep and the magnitude of multiplier will be large.

In case of a higher marginal propensity to consume (*mpc*) and therefore a higher value of multiplier, a given increment in investment demand caused by a given fall in the rate of interest will help to bring about a greater increase in equilibrium level of income. Thus, the higher the value of multiplier, the greater will be the rise in equilibrium income produced by a given fall in the rate of interest and this makes the IS curve flatter.

On the other hand, the smaller the value of multiplier due to lower marginal propensity to consume, the smaller will be the increase in equilibrium level of income following a given increment in investment caused by a given fall in the rate of interest. Thus, in case of smaller size of multiplier the IS curve will be more steep.

Position of IS Curve

Shift in IS curve is due to (*a*) change in autonomous spending (A) with interest rate constant or (*b*) change in taxes

$$\bar{A} = c\overline{TR} + \bar{I} + \bar{G} + \overline{NX}$$

IS curve will shift parallel to the right at each interest rate when either I increases or G increases or TR increases or tax decreases. The extent of shift will depend on the size of the multiplier.

$$\text{Shift in IS} = \frac{I}{I-c} \cdot \Delta G$$

Note: Shift in IS curve is due to $\Delta \bar{A}$ with interest rate constant.

Movement along IS curve is due to change in interest rate with autonomous spending $\left(\bar{A}\right)$ constant.

Assume: Initial AD $\rightarrow AD_1$

Autonomous spending $\rightarrow$ A

Interest rate $\rightarrow i_1$

goods market is in equilibrium at point E_1 because Y = AD at point E_1

Equilibrium output level $\rightarrow Y_1$

Thus, point E_1 corresponds to a point on the IS curve (IS_0)

If autonomous spending increases to A_1 for e.g.

Due to increase in I at a given interest rate $\rightarrow i_1$, firms plans to invest more, or due to increase in government expenditure the IS curve will shift to the right from IS_0 to IS_1.